

AMENDMENTS TO THE CLAIMS

1. (Withdrawn) A method for producing an article coated with a zirconium compound film characterized in that a zirconium target containing a metal of which the sputtering yield in an argon atmosphere is more than twice that of zirconium is used when the zirconium compound film is formed (deposited) by a reactive sputtering process on a substrate.

2. (Withdrawn) The method for producing an article coated with a zirconium compound film according to claim 1, wherein 1 - 45 at% of the metal is included in the zirconium target containing the metal.

3. (Withdrawn) The method for producing an article coated with a zirconium compound film according to claim 1, wherein 1 - 30 at% of the metal is included in the zirconium target containing the metal.

4. (Withdrawn) The method for producing an article coated with a zirconium compound film according to any one of claims 1 through 3, wherein a main material of the zirconium target containing the metal is at least one of a metallic zirconium and a carbon-containing zirconium.

5. (Withdrawn) The method for producing an article coated with a zirconium compound film according to any one of claims 1 through 4, wherein the metal is at least a kind of metal selected from a group consisting of tin, zinc and indium.

6. (Withdrawn) The method for producing an article coated with a zirconium compound film according to any one of claims 1 through 5, wherein a third metal other than the zirconium and the metal is included in the zirconium target containing the metal.

7. (Withdrawn) The method for producing an article coated with a zirconium compound film according to claim 6, wherein the third metal other than the zirconium and the metal is at least a kind of metal selected from a group consisting of calcium, yttrium, magnesium and neodymium.

8. (Withdrawn) The method for producing an article coated with a zirconium compound film according to claim 6 or claim 7, wherein the content of the third metal in the zirconium target containing the metal is 0.1 - 45 at%.

9. (Withdrawn) The method for producing an article coated with a zirconium compound film according to any one of claims 1 through 9, wherein the zirconium compound is a zirconium oxide.

10. (Withdrawn) The method for producing an article coated with a zirconium compound film according to any one of claims 1 through 8, wherein the zirconium compound is a zirconium nitride or a zirconium oxide-nitride.

11. (Withdrawn) The method for producing an article coated with a zirconium compound film according to any one of claims 1 through 10, wherein a substrate coated with the film is a plate-shaped glass.

12. (Withdrawn) The method for producing an article coated with a zirconium compound film, wherein a zirconium compound film is formed on a substrate coated with a crystallized zirconium oxide film by the method according to any one of claims 1 through 11.

13. (Withdrawn) The method for producing an article coated with a zirconium compound film having a photocatalytic function or an optical function, wherein a titanium compound film is formed by a sputtering process on the zirconium compound film formed by the method according to any one of claims 1 through 12.

14. (Withdrawn) The method for producing an article coated with a zirconium compound film having the photocatalytic function or the optical function according to claim 13, wherein the titanium compound film is a titanium oxide film, a titanium nitride film or a titanium oxide-nitride film.

15. (Withdrawn) The article coated with a zirconium compound film produced by the method according to any one of claims 1 through 12.

16. (Withdrawn) The article coated with a zirconium compound film having the photocatalytic function or the optical function produced by the method according to claim 13 or claim 14.

17. (Withdrawn) The article coated with a zirconium compound film containing a metal of which the sputtering yield in an argon atmosphere is more than twice that of zirconium.

18. (Withdrawn) The article coated with a zirconium compound film according to claim 17, wherein the content of the metal in the zirconium compound film is 1 - 45 at% in metal percentage.

19. (Withdrawn) The article coated with a zirconium compound film according to claim 17, wherein the content of the metal in the zirconium compound film is 1 - 30 at% in metal percentage.

20. (Withdrawn) The article coated with a zirconium compound film according to any one of claims 17 through 19, wherein the metal is at least a kind of metal selected from a group consisting of tin, zinc and indium.

21. (Withdrawn) The article coated with a zirconium compound film according to any one of claims 17 through 20, wherein the zirconium compound is a crystalline compound.

22. (Withdrawn) The article coated with a zirconium compound film according to claim 21, wherein the zirconium compound is a crystalline compound of a monoclinic system.

23. (Withdrawn) The article coated with a zirconium compound film according to any one of claims 17 through 22, wherein the zirconium compound is a zirconium oxide.

24. (Withdrawn) The article coated with a zirconium compound film, wherein a crystalline zirconium oxide film is provided between a substrate and the zirconium compound film according to any one of claims 17 through 23.

25. (Withdrawn) The article coated with a zirconium compound film according to any one of claims 17 through 24, wherein the substrate of the article coated with the zirconium compound film is a plate-shaped glass.

26. (Withdrawn) The article coated with a zirconium compound film having a photocatalytic function or an optical function, wherein a titanium compound film is provided on the zirconium compound film according to any one of claims 17 through 25.

27. (Withdrawn) The article coated with a zirconium compound film having the photocatalytic function or the optical function according to claim 26, wherein the titanium compound film is a titanium oxide film, a titanium nitride film or a titanium oxide-nitride film.

28. (Currently Amended) A sputtering target containing a metal ~~of which the sputtering yield in an argon atmosphere is more than twice that of zirconium in a target used for~~ forming ~~(depositing)~~ a zirconium compound film on a substrate by a reactive sputtering process, wherein the sputtering yield of the metal is more than twice the sputtering yield of zirconium in an argon atmosphere, and wherein a main material of the zirconium target containing the metal is at least one of metallic zirconium or carbon-containing zirconium.

29. (Original) The sputtering target according to claim 28, wherein the content of the metal in the zirconium target is 1 - 45 at% in metal percentage.

30. (Original) The sputtering target according to claim 28, wherein the content of the metal in the zirconium target is 1 - 30 at% in metal percentage.

31. (Canceled)

32. (Currently Amended) The sputtering target according to any one of ~~claims 26 through 30~~ claim 28, wherein the metal is at least ~~a kind of~~ one metal selected from a group consisting of tin, zinc and indium.

Birch, Stewart, Kolasch & Birch, LLP

33. (Currently Amended) The sputtering target according to any one of ~~claims 26 through 32~~ claim 28, wherein a third metal other than the zirconium and the metal is included in the sputtering target containing the metal.

34. (Original) The sputtering target according to claim 33, wherein the content of the third metal is 0.1- 45 at%.

35. (Currently Amended) The sputtering target according to claim 33 ~~or claim 34~~, wherein the third metal is at least ~~a kind of~~ one metal selected from a group consisting of calcium, yttrium, magnesium and neodymium.